

SVG Geothermal Development Project



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| AIM | To deliver a 10-15 MW geothermal power plant to St. Vincent & the Grenadines (SVG). |
| PROJECT PARTNERS | Reykjavik Geothermal; Government of St. Vincent and the Grenadines; |
| COST | \$92 M (27.6 Equity, 64.4 Debt) 30%/70% |
| PROJECT BACKGROUND | Extensive Geothermal Exploration revealed conditions comparable to those of productive fields world-wide. A preliminary geophysical model indicated temperatures in excess of 240°C. |

What is Project Finance?

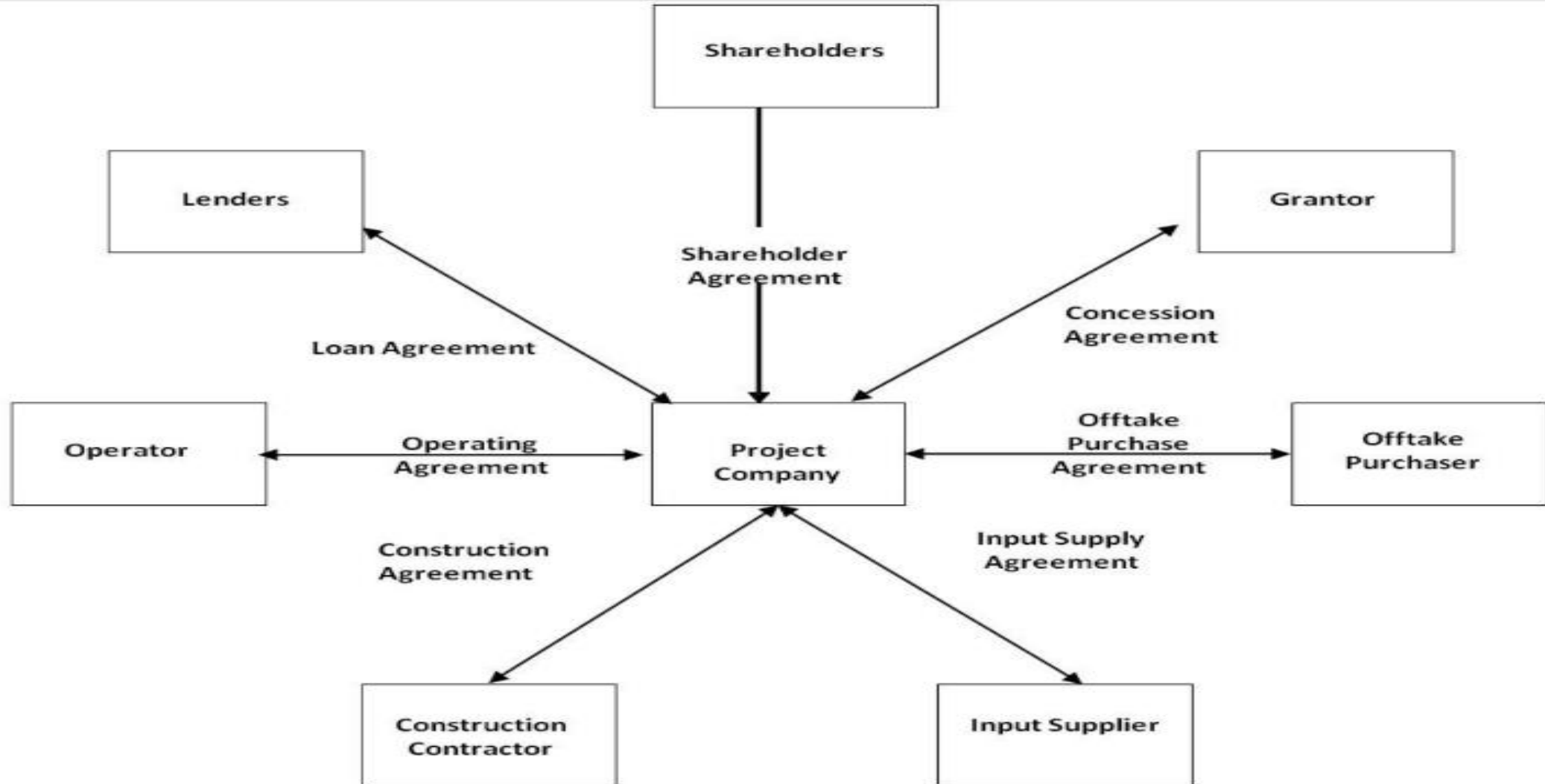
Project borrower is an SPV or joint venture

Lenders have **limited recourse to shareholders** with recourse generally limited to the equity contributed

Security of the lenders is limited to the project assets, project contracts and project cash flows

Construction and operations are usually distinct phrases and lenders finance the construction phase along with equity

Typical Project Finance Structure



Key Project Contracts prior to drilling

Project Operating Agreement

Concession agreement, VAT exemption, etc

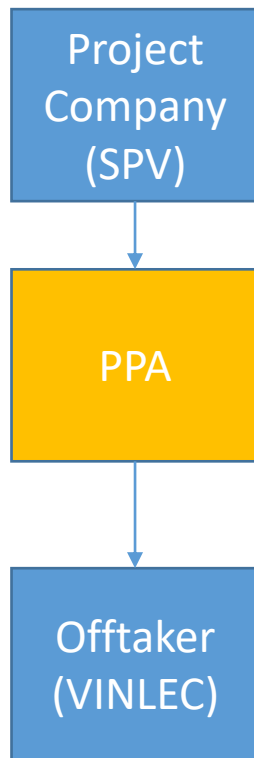
Shareholders agreement

Site lease, Access Rights, Easement

Transmission and Interconnection Agreement

Power Purchase Agreement

The Underlying Fundamentals - Power Purchase Agreement



Key Elements

- Long Term tenor typical (20 to 25yrs)
- Price –set price or linked to formula (market risk)
- Dispatch guaranteed – need to service debt
- Take or Pay or Availability (capacity charge)
- Ability to pass through risk to third parties
- Termination compensation regime (political risk, natural force majeure, seller default and buyer default)
- Change in law protection due to fixed price
- Strong credit worthiness of the offtaker
- Willingness of Government to support offtaker
- Testing and commissioning responsibilities and procedures

Key Bankability Requirements in the Power Purchase Agreement

Typically the Power Purchase Agreement is one of the first documents negotiated with the project documents.

- This is the case for two reasons (i) process of negotiating other documents is expensive and usually Shareholders want certainty that the project will be implemented before incurring cost
- The PPA forms the basis of the project in terms of the quality of revenue stream
- An incorrect allocation of risk in the PPA can prevent a good project from being developed

PPA: Components of Value

energy Price

Variable, \$/MWh, based upon actual performance or energy delivery

Capacity Price

Fixed, \$/MW-month, based upon availability or existence

Why Do Capacity Charges Exist?

Someone has pay to build the power plant (Capital Cost)

The energy price is the means of covering the cost from operating the plant.
(consumables, maintenance expenses, variable operations)

Capacity Charges

How could an Investor get comfortable building a power plant without a capacity payment?

- Charge only for energy (\$ per MWh)
 - ✓ Embed the fixed cost and variable cost into the energy price. (Note: Intermittent power like wind and solar generally take this approach.)
- Ensure that the plant will be paid, regardless of the energy needed by the utility
 - ✓ Take or Pay contracts
- Guarantee that the utility will buy a sufficient quantity of energy from the plant
 - ✓ Minimum purchase quantity specified in the PPA

Key Bankability Requirements in the Power Purchase Agreement

Transmission/Distribution Connection, Grid Downtime and Curtailment

- ✓ Connection of the project to the grid needs to be considered carefully, especially where additional lines are required. It is preferable for the additional lines to be built by the IPP and then transferred to the offtaker
- ✓ Grid owner will need to provide assistance with the commissioning and connection to the grid. Delays or lack of assistance will result in deemed payments

Key Bankability Requirements in the Power Purchase Agreement

Credit Support of Offtaker

- ✓ Government Support
- ✓ Often there is required liquidity support by the offtaker in the form of a bank L/C or an escrow account
 - ✓ The liquidity support can benefit the offtaker in the case of late payment from customers as it buys the offtaker time

Key Bankability Requirements in the Power Purchase Agreement

Seller Default

- ✓ Sellers typically assume
 - ✓ Technology risk
 - ✓ Operational risk
 - ✓ Resource risk
 - ✓ Constructional management risk
 - ✓ Insurable risk
- ✓ Seller default triggers need to be reasonable allowing the seller a period to remedy any breach before termination. Two material defaults included relate to delays in achieving COD and around availability/performance levels during operations.
- ✓ Following a Seller default,
 - ✓ Should the offtaker want to take ownership of the plant, 100% of debt will need to be paid as a termination payment
 - ✓ Should the offtaker not want to take ownership of the plant, there is no termination compensation payable and lenders will sell the assets to recover outstanding debt

Key Bankability Requirements in the Power Purchase Agreement

Buyers Default

- ✓ Buyers default include non-payment, insolvency, or failure to comply with material obligations
- ✓ Following a buyers default, normal termination payments to sellers include debt outstanding + equity return not earned

Key Bankability Requirements in the Power Purchase Agreement

Natural Force Majeure

- ✓ Force Majeure
 - Law definition- 'An unexpected and disruptive event that may operate to excuse a party from a contract'
 - Lenders definition- 'An unexpected and disruptive event which cannot be insured against that is beyond the control of the IPP and could not have been reasonable foreseen which prevents or hinders the IPPs ability to perform its obligations'
- ✓ Natural force majeure can be dealt with in a variety of ways in IPPs
 - ✓ Either no ability to terminate for prolonged periods
 - ✓ force majeure (or only the Seller has the ability to terminate) and the PPA is extended for each day of delay
 - ✓ Termination is possible for prolonged force majeure but then offtaker needs to pay outstanding debt and (nominal equity less dividends paid)

Key Bankability Requirements in the Power Purchase Agreement

Political Force Majeure

Political defaults include political force majeure events as well as intentional acts such as nationalisation, expropriation. Transfer and convertibility risk and war and civil disturbance would be included

Usually these risks are included in the PPA by the offtaker with further support from Government standing behind these risks

Following a political default, normal termination payments to sellers include debt outstanding + equity returns not yet earned

Key Bankability Requirements in the Power Purchase Agreement

Change in Law

Change in Law does not state that the Government cannot change the law. What it states is that if the Change in Law prevents the project from reasonably being able to operate or if the change in law results in an increase in cost to the project or a change in tax which is discriminatory, then the IPP needs to be compensated

This risk cannot be insured in the political risk market and it is typical for offtakers to assume this risk in the PPA with the Government standing behind these risk in a support agreement

PPA: Allocation of Risk

Questions of Risk

Who bears the resource risk? (Make up wells etc)

Answer:

SELLER/Project Company

- ✓ Wells should be able to sustain the life of the PPA. Makeup wells cost are factored into the PPA price.
- ✓ Penalties: known as Liquidated Damages for delay, failure to deliver power or obligations to provide make up power.

PPA: Allocation of Risk

Questions of Risk

Who bears burden of whether energy is needed when delivered?

Answer: Offtaker

- ✓ This is usually covered under take or pay obligations
- ✓ Who bears the burden of technology risk or performance problems

Answer: Project Company/Seller

- ✓ Often guarantees from O&M provider and equipment are mitigating measures
- ✓ Contractual cure periods to remedy the default are common
- ✓ LD's should not be onerous on Project Seller

PPA: Unique Concerns to SIDS

- Usually Governments cannot provide the sovereign guarantee required for IPPs
 - Payment guarantee for offtaker (3 to 6 months)
- Plant size are usually required to greater than 7.5kW to become economical for consumers.
- Potentially the IPP become the largest supplier of base load power to the grid
 - This poses reliability and stability concerns for the utility
- Climate change increases annual risk to natural force majeure
 - Offtaker are required to pay debt during periods of disaster, which can be financially burdensome and hence risk in payment default
 - Insurances against these risk are costly
- Utilities are burden with debt with very little demand growth hence PPA take or pay commitments can be a challenge
- Transmission Cost can be significant
- Infrastructure cost relative to plant capacity is high
- Limited capacity (technical, legal, operational)
- O&M contracts become unattractive for small geothermal plants (under 10MW)

What is Project Finance?

Cash Flows are King

- Project Financing is lending driven by cash flow analysis from a project
- The project's ability to generate future revenues is what is being financed as the credit analysis is based on forecast revenue for a project that has not yet been built
- Lenders build their financial models and cash flow projections based on the terms on the contracts and agreements
- Lenders take comfort from the strength of the contracts and their enforceability to ensure that projected revenues will be sufficient to repay debt under different scenarios
- Focus is on the performance of the project (potential operators) because repayment is reliant on the cash flow of the project. i.e downside protection
- Risk allocation is key and how are risk protected determines the bankability